CLAIMS:

1. A field howitzer which comprises:
   i) a howitzer barrel,
   ii) a cradle supporting the barrel and having a rearward end,
   iii) a chassis, and
   iv) a trunnion support structure secured to the chassis and including a trunnion bearing about which the rearward end of the cradle is pivotally mounted, said trunnion bearing lying on the axis of the barrel and being positioned beyond the limit of maximum recoil of the barrel.

2. A field howitzer comprising:
   i) a chassis,
   ii) spades rigidly secured to the howitzer chassis;
   iii) front stabilisers operable to spread the load of the howitzer over a large area of ground when not being fired; and
   iv) rear trail support legs operable to spread the load of the howitzer over a large area of ground and to assist with the absorbing of recoil energy while providing overturning and lateral stability.

3. A howitzer as claimed in claim 2 wherein the spades are secured directly to the chassis.

4. A howitzer as claimed in claim 2 wherein the spades are located at the ends of the rear trail support legs.

5. A howitzer as claimed in claim 2 wherein the rear trail support legs are hingedly mounted to the chassis and hydraulic dampers are provided at, or near, the attachment points of the rear trail support legs to the chassis to assist with the absorbing of recoil

energy.

6. A howitzer as claimed in claim 2 wherein the spades are removable.

7. A field howitzer comprising:-

i) a chassis,

ii) a howitzer barrel mounted on the chassis so as to be displaceable from a first to a second position with respect to the chassis, as a consequence of recoil on firing,

iii) a recoil buffer system to absorb the energy of recoil as the barrel is displaced on firing, and

iv) a recuperator system to return the displaced barrel from the second position to the first position, said recoil buffer system and said recuperator system being combined and utilising a single hydraulic accumulator arrangement.

8. A howitzer as claimed in claim 7 wherein the barrel is supported in a trunnion support structure by means of a cradle and the cradle is constructed from hollow members, the space inside said hollow members being used wholly, or in part, to provide the volume for compressed inert gas forming part of said hydraulic accumulator arrangement.

9. A field howitzer comprising

i) a chassis;

ii) a howitzer barrel supported in a cradle and mounted in a trunnion bearing on the chassis so as to be pivotable about a horizontal axis, and

iii) elevating means for pivoting the barrel about said axis, said elevating means comprising a geared manual means assisted

by precompressed gas.

10. A howitzer as claimed in claim 9 wherein the howitzer barrel is mounted so as to be out-of-balance and the degree of assistance provided by the precompressed gas is sufficient to substantially counterbalance the barrel weight due to its positive out-of-balance.

11. A howitzer as claimed in claim 10 wherein the barrel weight is balanced by gas springs consisting of cylinders pressurised by an inert gas reservoir.

12. A howitzer as claimed in claim 9 wherein the cradle is constructed from hollow members and the space inside the hollow members is used, wholly or in part, to provide the volume for the gas.

13. A howitzer as claimed in claim 9 wherein the elevating means comprises a lead screw, essentially pivotally fixed at one end and along which a nut may be screwed, said nut being fixed relative to the cradle but rotatable so that the resulting translational movement of said nut along said lead screw causes said cradle to move in a rotary direction about the trunnion bearing, thus elevating/depressing the barrel of the howitzer.

14. A howitzer as claimed in claim 13 wherein the essentially pivotally fixed end of said lead screw is provided with a flexible tunable mounting comprising;

i) a spring means aligned parallel to the axis of said lead screw, and

ii) a damper;

wherein the spring constant, pre-load and resistance to motion provided by the damper are adjustable to give a tunable system.

15. A howitzer as claimed in claim 14 wherein the spring means comprises a series of spring washers and the damper is a hydraulic damper.

16. A field howitzer comprising:
i) a chassis,
ii) a howitzer barrel mounted on the chassis by means of a training bearing so as to be pivotable about a vertical axis, said training bearing comprising (a) a small central locating bearing having inner and outer bearing surfaces one of which is fast with the chassis and the other of which is fast with a support for the barrel and (b) a separate large diameter thrust bearing formed as part of a concentric arc on the opposite side of said small central locating bearing to the barrel.

17. A howitzer as claimed in claim 16 which includes a training rack integral with a part of the thrust bearing arc.

18. A field howitzer comprising:
i) a chassis;
ii) a howitzer barrel mounted on the chassis,
iii) a muzzle brake on the barrel, and
iv) a hinged lunette attached to the barrel adjacent to the muzzle brake to enable the howitzer to be towed.

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